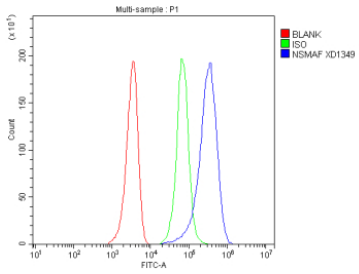
NSMAF Antibody / Neutral sphingomyelinase activation associated factor (FY13307)

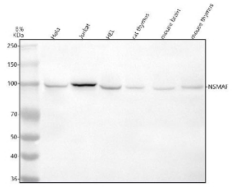
Catalog No.	Formulation	Size
FY13307	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Availability	1-2 days
Species Reactivity	Human, Mouse, Rat
Format	Lyophilized
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q92636
Applications	Western Blot : 0.25-0.5ug/ml Flow Cytometry : 1-3ug/million cells ELISA : 0.1-0.5ug/ml
Limitations	This NSMAF antibody is available for research use only.



Flow Cytometry analysis of HEL cells using anti-NSMAF antibody. Overlay histogram showing HEL cells stained with (Blue line). The cells were fixed with 4% paraformaldehyde and blocked with 10% normal goat serum. And then incubated with rabbit anti-NSMAF antibody (1 ug/million cells) for 30 min at 20oC. DyLight 488 conjugated goat anti-rabbit IgG (5-10 ug/million cells) was used as secondary antibody for 30 minutes at 20oC. Isotype control antibody (Green line) was rabbit IgG (1 ug/million cells) used under the same conditions. Unlabelled sample without incubation with primary antibody and secondary antibody (Red line) was used as a blank control.



Western blot analysis of NSMAF using anti-NSMAF antibody. Lane 1: human Hela whole cell lysates, Lane 2: human Jurkat whole cell lysates, Lane 3: human HEL whole cell lysates, Lane 4: rat thymus tissue lysates, Lane 5: mouse brain tissue lysates, Lane 6: mouse thymus tissue lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-NSMAF antibody at 0.5 ug/ml overnight at 4oC, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal was developed using enhanced chemiluminescent. A predominant band is detected just below an approximately 100 kDa in all samples, very close to the predicted ~104 kDa size and consistent with the apparent molecular weight of full length NSMAF under these electrophoresis conditions.

Description

NSMAF antibody detects Neutral sphingomyelinase activation associated factor, a cytoplasmic adapter protein encoded by the NSMAF gene located on chromosome 8q12.3. NSMAF, also known as FAN (Factor Associated with Neutral sphingomyelinase activation), functions as a key signaling mediator in the tumor necrosis factor alpha (TNF-alpha) and Fas receptor pathways. The protein plays a crucial role in linking cell surface death receptors to intracellular sphingolipid metabolism and apoptosis. Structurally, NSMAF contains WD40 repeats that form a beta-propeller domain, facilitating protein-protein interactions involved in signal transduction. It acts as an adaptor that activates neutral sphingomyelinase (nSMase), leading to ceramide generation'a central event in stress-induced and inflammatory signaling.

At the cellular level, NSMAF antibody recognizes a protein localized in the cytoplasm and associated with endoplasmic reticulum membranes during receptor activation. Upon TNF-alpha or Fas ligand stimulation, NSMAF interacts with TNF receptor-associated factor 2 (TRAF2) and FAN-interacting proteins, triggering the hydrolysis of sphingomyelin into ceramide by nSMase2. Ceramide acts as a bioactive lipid second messenger that regulates apoptosis, autophagy, inflammation, and oxidative stress responses. This signaling mechanism is essential for maintaining immune homeostasis and cellular stress adaptation.

Functional studies have shown that NSMAF contributes to cell death regulation, immune signaling, and host defense mechanisms. Dysregulation of the NSMAF-nSMase-ceramide pathway has been implicated in chronic inflammatory diseases, metabolic disorders, and neurodegeneration. In the nervous system, ceramide accumulation triggered by NSMAF signaling can promote neuronal apoptosis and has been associated with diseases such as multiple sclerosis and Alzheimer's disease. Conversely, controlled activation of NSMAF supports immune responses by facilitating cytokine release and pathogen clearance. The protein may also modulate NF-kappaB signaling and contribute to receptor-mediated endocytosis.

Structurally, NSMAF consists of several WD repeat domains that create a stable platform for protein interaction with nSMase2, TRADD, and RIP1. This organization enables NSMAF to function as a scaffold for assembly of TNF receptor signaling complexes. Alternative splicing of NSMAF produces isoforms that may vary in their regulatory or tissue-specific functions. Expression is highest in immune organs such as spleen, lymph nodes, and thymus, but is also detected in brain, liver, and kidney, reflecting its broad physiological role.

Clinically, mutations or altered expression of NSMAF have been linked to immune dysregulation, susceptibility to infections, and cancer. Impaired NSMAF signaling can lead to defective ceramide synthesis and resistance to apoptosis in tumor cells. Inflammatory pathologies such as colitis and rheumatoid arthritis show altered ceramide signaling patterns involving NSMAF activation. Its involvement in lipid-mediated signaling makes it a target of interest for therapeutic interventions aiming to modulate sphingolipid metabolism and inflammatory pathways.

Immunohistochemical analysis using NSMAF antibody shows strong cytoplasmic staining in immune and epithelial

tissues. The NSMAF antibody from NSJ Bioreagents is a valuable tool for investigating TNF-alpha signaling, ceramide metabolism, and the molecular mechanisms linking lipid signaling to cell death and immunity.

Application Notes

Optimal dilution of the NSMAF antibody should be determined by the researcher.

Immunogen

E.coli-derived human NSMAF recombinant protein (Position: K51-L868) was used as the immunogen for the NSMAF antibody.

Storage

After reconstitution, the NSMAF antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.